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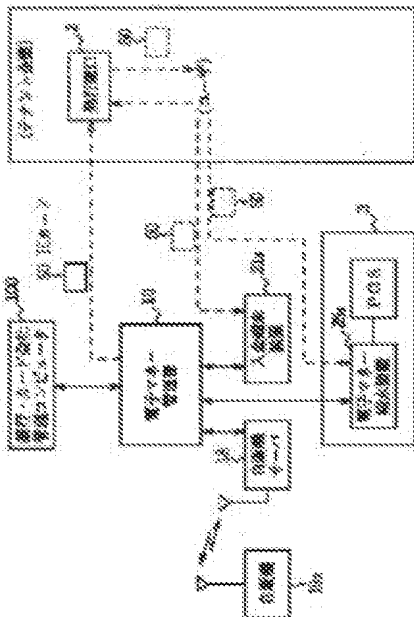
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## (54) ELECTRONIC MONEY SYSTEM, ELECTRONIC MONEY TERMINAL DEVICE, AND INFORMATION CARD



### (57)Abstract:

PROBLEM TO BE SOLVED: To provide an electronic money system, an electronic money terminal device, and an information card which realizes easier and more reliable use of the card substituted for cash and confirmation of the balance in the case that the card has been lost.

SOLUTION: With respect to an electronic money system 1, an electronic money terminal device 25x and an information card 50 which are so provided that the data of the amount of money consumed by a user may be drawn from amount data received by the information card 50 by the electronic money terminal means 25x, use history data at the time of drawing the data of the amount of money consumed from the information card 50 is stored in the electronic money terminal means 25x, and if the information card 50 has been lost, use history data related to this information card 50 out of use history data stored in the electronic money terminal means is referred to for

confirming the balance of this information card 50.

**Machine translation obtained from Japan Patent Office website.**

[Claim(s)]

[Claim 1] In an electronic money system which has an electronic money terminal means which pulls out money data for a user's consumption amount from money data received by information card, An above-mentioned electronic money terminal means to accumulate utilization history data at the time of pulling out money data for the above-mentioned consumption amount from the above-mentioned information card, An electronic money system having a means corresponding to card loss which decides the balance of an information card which was lost based on utilization history data about an information card in the above-mentioned utilization history data accumulated in the above-mentioned electronic money terminal means which was lost as for the account of the upper as for the account of the upper when the above-mentioned information card is lost.

[Claim 2] An electronic money management tool which collects periodically the above-mentioned utilization history data in which a means corresponding to the above-mentioned card loss was accumulated in the above-mentioned electronic money terminal means, The electronic money system according to claim 1 provided with a balance decision means to decide the balance of an information card which was lost based on the above-mentioned utilization history data collected by the above-mentioned fixed target as for the account of the upper.

[Claim 3] The electronic money system according to claim 1 when a means corresponding to the above-mentioned card loss is lost [ the above-mentioned information card ], wherein it stops use of an information card which was lost to the above-mentioned electronic money terminal means as for the account of the upper.

[Claim 4] The electronic money system according to claim 1 when a means corresponding to the above-mentioned card loss is used [ an information card which was lost as for the account of upper ] in the above-mentioned electronic money terminal means, wherein it sets an information card which was lost as for the account of the upper as a disable state.

[Claim 5] Electronic money terminal equipment having a lost card scanning tool which suspends use of an information card which was lost as for the account of the upper when the above-mentioned information card is lost in electronic money terminal equipment which pulls out money data for a user's consumption amount from money data received by information card.

[Claim 6] The electronic money terminal equipment according to claim 5 when the above-mentioned lost card scanning tool is used [ an information card which was lost as for the account of the upper ], wherein it sets an information card which was lost as for the account of the upper as disable information.

[Claim 7] In an information card made as [ draw / memorize money data paid in beforehand and / money data for a user's consumption amount / from money data memorized / above-mentioned / an electronic money terminal means ], When the above-mentioned electronic money terminal means draws out money data for the above-mentioned consumption amount from money data memorized [ above-mentioned ], An information card provided with an use restriction means which stores disable information supplied from the above-mentioned electronic money terminal means according to a predetermined card report of the loss of an article, and is set as a disable state.

[Detailed Description of the Invention]

[0001] [Field of the Invention] This invention is applied to the electronic money system, the electronic money terminal equipment, and the information card which use for it storing money data in an information card about an electronic money system, electronic money

terminal equipment, and an information card, and is preferred.

[0002] [Description of the Prior Art]When a user uses conventionally the ATM card and credit card which are published in a bank, a credit company, etc., The salesclerk of the store concerned makes the card number memorized by the card terminal at the magnetic stripe of the card read at the store in which the card terminal which receives these cards was installed, and the rental spending at this time is inputted.

[0003]At this time, a card terminal connects a communication line to the management computer of a bank or a card issuer, and transmits information, including a card number, rental spending, etc. The management computer of a bank or a card issuer has managed the expiration state of the ATM card and credit card which each user owns, the state whether to have reached the use limit, the existence of a report of the loss of an article, etc.

The use propriety of a card is judged based on the card number and rental spending information which were transmitted via the communication line from the card terminal.

And if a decision result with the usable card concerned is obtained, the management computer of a bank or a card issuer will return the licence information about the card to the card terminal which is a transmitting agency, and it will perform pulling-down procedure from the designated account of a card, etc. about rental spending.

[0004] [Problem to be solved by the invention]By the way, in the system which uses this ATM card and credit card, Whenever the user used this, the need for approval of card use needed to be transmitted from the card terminal to the management computer of a bank or a card issuer, and there were a part for which connection processing of a communication line is needed, and a problem to which the processing at the time of use of a card becomes complicated.

[0005]The electronic money system which uses the IC card concerned for cash substituting it is considered by inputting cash data into IC (Integrated Circuit) card for this problem as one method for \*\*\*\*\*.

[0006]However, in this system, when an IC card is lost, it is difficult to check the balance of that cash data, and there was a problem to which it becomes difficult to repay a user to lost cash data.

[0007]This invention was made in consideration of the above point, can use much more the card substituted for cash easily and certainly, and it tends to propose the electronic money system, the electronic money terminal equipment, and the information card which can check the balance at the time of card loss.

[0008]

[Means for solving problem]In [ in order to solve this problem ] this invention, In the electronic money system made as [ draw / the money data for a user's consumption amount / from the money data received by the information card / an electronic money terminal means ], The utilization history data at the time of pulling out the money data for consumption amount from an information card is accumulated in an electronic money terminal means, When an information card is lost, the balance of the lost information card can be checked by referring to the utilization history data about the lost information card in the utilization history data accumulated in the electronic money terminal means.

[0009]Therefore, even when an information card is lost, the balance of the lost information card concerned can be decided and processing of the refund according to the settled balance concerned, etc. can be performed to a user.

[0010]An electronic money terminal means suspends the handling of the lost information card concerned by registering the lost information card. When use of the information card furthermore lost is tried, the information card concerned itself will be in a disable state by writing in disable information from an electronic money terminal means to the information card concerned.

[0011]Surreptitious use of the information card to write and which was lost in carrying out is prevented.

[0012] [Mode for carrying out the invention]About Drawings, the 1 embodiment of this invention is explained in full detail below.

[0013](1) The electronic money Management Department 10 which 1 shows an electronic money system as a whole in the block diagram 1 of an electronic money system, and performs issue of IC card 50, management of electronic money, and settlement of accounts, Payment terminal unit 21<sub>x</sub> which pays electronic money (money data) to IC card 50, Electronic money terminal equipment 25<sub>x</sub> of each store 3 which receives the payment of the user by IC card 50 by which the electronic money concerned was received, It has the vending machine server 18 which receives the utilization histories (rental spending, time, etc.) of IC card 50 from vending machine 19<sub>x</sub> made as [ purchase / using IC card 50 / a user / goods ], and concerned vending machine 19<sub>x</sub>, and accumulates this. Two or more payment terminal unit 21<sub>x</sub> and electronic money terminal equipment 25<sub>x</sub> and vending machine 19<sub>x</sub> are installed.

[0014]In [ as shown in drawing 2 ] the electronic money Management Department 10, The 1st LAN (Local Area Network). Various servers (the security server 11, the electronic money server 13, the issue data server 14, the issuing device 15, the comprehensive server 16, the access server 17, and the vending machine server 18) are connected to data bus BUS1 to constitute, Various terminal units (payment terminal unit 21<sub>1</sub>-21<sub>n</sub> and electronic money terminal equipment 25<sub>1</sub>-25<sub>n</sub> and vending machine 19<sub>1</sub>-19<sub>n</sub>) are connected to data bus BUS2 which constitutes the 2nd LAN. And the 1st LAN and 2nd LAN are connected via the access server 17.

[0015]At the electronic money Management Department 10, the security server 11, As shown in drawing 3, have CPU11A which operates according to the operation program stored in the storage parts store 11B, and the CPU11A concerned, In transfer of the data between the comprehensive server 16, and other terminal units and a server, the data concerned delivered and received is inputted via the communications department 11H, and authenticating processing of the communication destination by the encryption and the mutual recognition part 11C using a predetermined cryptographic key, etc. are performed.

[0016]The comprehensive server 16 has CPU16A which operates according to the operation program stored in the storage parts store 16B, as shown in drawing 4, The transaction history information of the money data etc. which were paid in via each payment terminal unit 21<sub>1</sub> - 21<sub>n</sub>, the utilization history (an IC card number.) of IC card 50 accumulated in each electronic money terminal equipment 25<sub>1</sub> - 25<sub>n</sub>Rental spending, time, etc. are incorporated from the communications department 16H via the 2nd LAN, access server 17, 1st LAN, and security server 11, and it stores in the database 16C via data bus BUS16.

[0017]The comprehensive server 16 is made as [ store / the pulling-down money data from the user designated account supplied from a bank and the credit company management computer 100 / in the database 16C / via the electronic money server 13 ].

[0018]The electronic money server 13 delivers and receives data by a predetermined communication line between external bank and credit company computer 100, and it settles accounts at 1 time of a rate in one month based on various information about the electronic money stored in the database 16C of the comprehensive server 16.

[0019]The issue server 14 registers into the database the combination of the credit card number of the user who owns the IC card number of IC card 50 published in the issuing device 15, and IC card 50 concerned.

[0020]the utilization history (the amount of use.) of IC card 50 to which the vending machine server 18 was transmitted from each vending machine 19<sub>1</sub>-19<sub>n</sub>Time etc. are accumulated, for example, this will be stored in the database 16C of the comprehensive server 16 on the 1st via the 2nd LAN, access server 17, 1st LAN, and security server 11 at 1 time of a rate.

[0021]In this electronic money system 1, the issuing device 15 of the electronic money Management Department 10 publishes the IC (Integrated Circuit) card 50 made as [ read / information / by non-contact / write in or ], and distributes this among a user at the issue window 2 (drawing 1) of each tenant company. This IC card 50 has a memory and a peculiar IC card number is beforehand memorized by the memory concerned for every IC card.

[0022][0022]. That is, I is provided with the following.

The coiled loop which - DO 50 is a batteryless type IC card which does not have a battery for current supply as shown in drawing 5 and drawing 6, for example, uses the plate-like substrate 55 as a pedestal, receives the electromagnetic waves emitted from the data write readout system 60, and is changed into an electrical signal.

Tena 52, the abnormal conditions of send data, or the recovery of received data is performed - strange.

It is a line about the circuit 53, the analysis of received data, and generation of send data.

[0023]In this IC card 50, the loop antenna 52 receives the electromagnetic waves emitted from the data write readout system 60, and it sends out to the modulation and demodulation circuit 53 by making this into a modulated wave. The modulation and demodulation circuit 53 restores to a modulated wave, and supplies this to the digital disposal circuit 54 as the send data D1 transmitted from the data write readout system 60.

[0024]The control section 59 from which the digital disposal circuit 54 is constituted by a hard logical circuit or CPU (Central Processing Unit), It has a memory part which consists of ROM (Read Only Memory)57 and RAM (Random Access Memory)58 inside, The control section 59 reads the various data D2 about the electronic money which analyzes the send data D1 on RAM58 according to the program currently written in ROM57, and is stored in RAM58 based on the analyzed send data D1, and sends this out to the modulation and demodulation circuit 53. The modulation and demodulation circuit 53 modulates the data D2, and emits it to the data write readout system 60 as electromagnetic waves from the loop antenna 52 (drawing 5).

[0025]The modulation and demodulation circuit 53 has a power supply circuit which changes the energy of electromagnetic waves into stable DC power supply inside, Based on the electromagnetic waves which emanated from the data write readout system 60, and were received with the loop antenna 52, generate DC-power-supply DC1, and supply the control section 59 by a power supply circuit, and. It is made as [ receive / supply clock signal CLK1 generated based on the received electromagnetic waves to the control section 54, and / from the control section 54 / control signal CTL1 for various control ].

[0026]The data write readout system 60 inputs into the modulation and demodulation circuit 61 various send data supplied via the data bus BUS, The modulation and demodulation circuit 61 performs the modulation process based on send data using the subcarrier of a predetermined frequency band which may emit this efficiently as electromagnetic waves, and emits it as electromagnetic waves from the loop antenna 62.

[0027]The data write readout system 60 receives the electromagnetic waves emitted from IC card 50 with the loop antenna 62, and supplies them to the modulation and demodulation circuit 61 by making this into a modulated wave. The modulation and demodulation circuit 61 restores to a modulated wave, and supplies this to a signal processing part (not shown) via the data bus BUS as data transmitted from IC card 50.

[0028]RAM58 of this IC card 50 is made as [ memorize / various information about electronic money ], and these information is stored in two or more files managed by the directory. Namely, in RAM58 of IC card 50, as shown in drawing 7 (A), The management information D10 which consists of access key D13 grade to the defining information D12 and the file of IC card number D11, a file, and a directory which are the high order information of a directory, and the electronic money information D20 which is low rank information on

directory structure as shown in drawing 7 (B) are memorized. The balance data D22 which expresses the balance of electronic money as the electronic money information D20, The electronic money log data D23 showing the utilization history of electronic money, When a user performs shopping etc. using IC card 50, the balance data D22 receives rental spending. The credit card use flag (it mentions later) D24 which pays the insufficiency concerned as a part for credit card use, and registers beforehand whether it is possible at the time of distribution of IC card 50 when it runs short, in addition, the information (a staff number and gate-entry-and-exit data) D25 about a user and the disable flag (Negative Flag) mentioned later -- D26 is written in each file.

[0029]The user who received distribution of this IC card 50 inputs into IC card 50 the money data (electronic money) which replaces the cash of the amount of money for a request using cash, an ATM card, or a credit card by payment terminal unit 21<sub>x</sub> shown in drawing 1. The card communications department 21D (it is composition like the loop antenna 62 of drawing 5, and the modulation and demodulation circuit 61) deliver and receive data by non-contact to IC card 50 as this payment terminal unit 21<sub>x</sub> is shown in drawing 8. The credit card communications department 21E which reads data in the magnetic stripe of an ATM card or the credit card 40, It has the \*\* receipt discharge portion 21I which sweeps out the touch panel in which the input-in-cash part 21J which injects cash, and the display 21F and the final controlling element 21G were unified, and the receipt which is the duplicates of use in the armoring part.

[0030]As a receiving method which inputs money data (electronic money) into IC card 50 using this payment terminal unit 21<sub>x</sub>, A receiving method by the cash which writes the money data for cash in which the payment terminal unit 21<sub>x</sub> concerned was supplied when a user injected cash into the input-in-cash part 21I of a payment terminal unit in RAM58 of IC card 50, Or when a user inserts the ATM card of bank issue, and the credit card of card issuer issue in the credit card communications department 21E and does input specification of the desired amount of money via the final controlling element 21G. There is a way payment terminal unit 21<sub>x</sub> moves the specified money data concerned from the designated account of an ATM card or a credit card to IC card 50. Incidentally an ATM card means the card for using the deposit of a bank account, and a credit card means a card for the credit company which published the credit card concerned to lend prescribed amount of money to a user.

[0031]Here, as shown in drawing 9, in payment terminal unit 21<sub>x</sub>, CPU21A is made as [ perform / according to the program stored in the storage parts store 21B / the receiving process procedure shown in drawing 10 ]. If a user makes IC card 50 approach the card communications department 21D and payment start operation is performed via the final controlling element 21G, CPU21A, Move from step SP10 shown in drawing 10 to step SP11 which enters and follows the receiving process procedure concerned, and information, including a card number etc., is read from IC card 50, and it awaits that a user inputs a receiving method via the alter operation part 21G.

[0032]If a user specifies the payment by cash here, CPU21A will await that open the charging lid of the input-in-cash part 21J, and a user injects cash. And if a user injects cash into the input-in-cash part 21J, CPU21A will count the amount of the injected cash concerned.

[0033]On the other hand, if a user specifies the receiving method using an ATM card or the credit card 40, Insertion to the credit card communications department 21E of an ATM card or the credit card 40 is urged to CPU21A to a user by the display of the display 21, and the operational input of the amount of money for payment is urged to it. Thereby, a user inputs the desired amount of money for payment via the final controlling element 21G.

[0034]When CPU21A is the payment according [ the receiving method specified by a user ] to cash in this way, Move to step SP17 from step SP12 continuing, and a user transmits the

amount of the cash injected into the input-in-cash part 21J to IC card 50 via the card communications department 21D at this time, and. The inputted money data based on the cash concerned is transmitted and stored in the comprehensive server 16 of the electronic money Management Department 10 via the communications department 21H. Thereby, the control section 50 of IC card 50 updates the balance data D22 (drawing 7 (B)) showing the balance of the electronic money concerned by adding the payment money data transmitted from payment terminal unit 21<sub>x</sub> to the electronic money remainder of RAM58.

[0035]On the other hand, when the receiving method specified by a user is a receiving method using an ATM card or the credit card 40, Move from CPU21A to step SP13 from step SP12, and a credit card number is read from the magnetic stripe of the ATM card or the credit card 40 inserted in the credit card communications department 21E, The credit card number concerned and the password of the ATM card or the credit card 40 which the user inputted via the final controlling element 21G at this time, The using request of an ATM card or the credit card 40 and its amount of money are transmitted to the electronic money Management Department 10 (drawing 1) via the communications department 21H. At this time, the mutual recognition part 21C of payment terminal unit 21<sub>x</sub> is made as [ judge / whether the communication destination where CPU21A communicates is a regular communication destination ].

[0036]And the credit card number to which the electronic money Management Department 10 was transmitted from payment terminal unit 21<sub>x</sub>, The using request of the password of a user input, an ATM card, or the credit card 40 and its amount of money are transmitted to the bank and the credit company management computer 100 which manages an ATM card and a credit card via a communication line.

[0037]A bank and the credit company management computer 100, About each ATM card and credit card which a user owns. The ATM card number and credit card number, and a regular password are managed, When the combination of the credit card number transmitted from the electronic money Management Department 10 at this time and the password of a user input is a regular combination, the using request of the transmitted credit card concerned is received.

[0038]And a bank and the credit company management computer 100, The propriety of the card use based on the term of a check and the ATM card concerned of the balance of the account specified with the ATM card number transmitted from the electronic money Management Department 10 at this time or the credit card number, or the credit card 40, report-of-the-loss-of-an-article information, etc. is judged.

[0039]The amount of money specified at this time remains in the designated account, and when use of an ATM card or the credit card 40 is possible, A bank and the credit company management computer 100 recognize use of the amount of money concerned, returns that to the electronic money Management Department 10, and it moves the amount of money concerned from a designated account to the comprehensive server 16 of the electronic money Management Department 10. On the other hand, when the specified amount of money runs short by the designated account, or when use of the card concerned is not recognized using a term, report-of-the-loss-of-an-article information, etc. on an ATM card or the credit card 40, A bank and the credit company management computer 100 do not recognize use of the amount of money concerned, but returns that to the electronic money Management Department 10.

[0040]When the electronic money Management Department 10 transmits a recognition decision result to payment terminal unit 21<sub>x</sub>, CPU21A of payment terminal unit 21<sub>x</sub> receives a recognition decision result via the communications department 21H in step SP14 of drawing 10.

[0041]And when the recognition decision result concerned can be recognized, CPU21A transmits the amount of money which moved to step SP17 from step SP15, and the user

specified to IC card 50. Thereby, the control section 50 of IC card 50 updates the balance data D22 (drawing 7(B)) showing the balance of the electronic money concerned by adding the payment money data transmitted from payment terminal unit 21<sub>x</sub> to the electronic money remainder of RAM58.

[0042]And from the receipt discharge portion 21I, CPU21A sweeps out the receipt which printed the transaction content concerned, and ends the receiving process procedure concerned in step SP18.

[0043]On the other hand, when the recognition decision result received in step SP14 cannot recognize, It moves to SP16 from step SP15, and CPU21A displays that use recognition of the ATM card or the credit card 40 which the user inserted in the credit card communications department 21E at this time is not acquired on the display 21F, and ends the receiving process procedure concerned in step SP18.

[0044]In this way, if the money data (electronic money) of a user desire is inputted using cash to IC card 50, The inputted money data based on the cash concerned is transmitted and stored in the comprehensive server 16 of the electronic money Management Department 10 from payment terminal unit 21<sub>x</sub>. If the money data (electronic money) of a user desire is inputted using an ATM card or the credit card 40 to IC card 50, At this time, a bank and the credit company management computer 100, The money data equivalent to money data (electronic money) inputted into IC card 50 is transmitted to the electronic money Management Department 10 from the account specified with the ATM card or the credit card 40 at this time, and it stores in the comprehensive server 16.

[0045]By this, the comprehensive server 16 of the electronic money Management Department 10 will hold the money data of the amount of money of the electronic money received by IC card 50 (a part for a part for cash payment, an ATM card, or credit card payment is included).

[0046]Thus, the money data (electronic money) of a user desire is inputted into IC card 50 by various receiving methods by cash, an ATM card, or a credit card. And the user can perform shopping in each store, etc. using IC card 50 into which the money data concerned was inputted.

[0047]Electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) which connects a POS (Pointing On Sale) register, for example is provided in each store. The body part 25J which the salesclerk of the store in which the electronic money terminal equipment 25<sub>x</sub> concerned was installed operates as this electronic money terminal equipment 25<sub>x</sub> is shown in drawing 11. When the user who uses IC card 50 brings IC card 50 close, it has the IC card write-in read station 25K which delivers the data for use between IC cards 50 concerned by non-contact.

[0048]It has the touch panel in which the display 25F and the final controlling element 25G were united with the armoring part of the body part 25J, and four-operations key 25G<sub>1</sub>, function key 25G<sub>2</sub>, and 100 yen key 25G<sub>3</sub> and 1000 yen key 25G<sub>4</sub> etc. are provided as the final controlling element 25G. The salesclerk who can set the prices of goods with high use frequency as each function key 25G<sub>2</sub> beforehand, and operates the body part 25J, By operating function key 25G<sub>2</sub> and four-operations key 25G<sub>1</sub>, as shown in "F1x3+F2x2", the price can be easily inputted to two or more merchandise purchase. Incidentally, 100 yen key 25G<sub>3</sub> and 1000 yen key 25G<sub>4</sub> are used when a salesclerk inputs the prices of goods using the numerical keypad of four-operations key 25G<sub>1</sub>.

[0049]The IC card write-in read station 25K has the card communications department 21D (it is composition like the loop antenna 62 of drawing 5, and the modulation and demodulation circuit 61) which delivers and receives data by non-contact to IC card 50, and the display 25L as which a transaction content is displayed in the armoring part. When using this electronic money terminal equipment 25<sub>x</sub> and a user performs the act which holds up IC card 50 to the IC card write-in read station 25K of electronic money terminal equipment 25<sub>x</sub> (it is made to



approach), It is made as [ judge / that the user concerned has a use intention (namely, consumption intention) of IC card 50 ].

[0050][0050]. It has below \*\*.

The sale-proceeds display as which the sale proceeds into which the salesclerk inputted the part 25L via the final controlling element 25G in the body part 25J are displayed.

The amount display of a total which displays the shortage amount concerned as L<sub>1</sub> when the balance of IC card 50 runs short.

The balance display part which displays the electronic money remainder of IC card 50 after using IC card 50 at this time as L<sub>2</sub>.

[0051]And it is made for the CPU25A to have the IC card use procedure shown in drawing 13 performed according to the program stored in the storage parts store 25B in electronic money terminal equipment 25<sub>x</sub>, as shown in drawing 12. A user makes IC card 50 approach the card communications department 25D of the IC card write-in read station 25K, and CPU25A. If transaction start operation is performed when a salesclerk operates the final controlling element 25G of the body part 25J, Move from step SP20 shown in drawing 13 to step SP21 which enters and follows the IC card use procedure concerned, and information, including a card number etc., and the past utilization history data mentioned later are read from IC card 50, and it awaits that a salesclerk inputs sale proceeds via the final controlling element 25G.

[0052]Incidentally, it is made as [ forbid / when it reads whether the disable flag D26 (drawing 7 (B)) stands from IC card 50 at this time as for CPU25A and the disable flag D26 concerned stands / registration of that IC card 50 ]. The details of the disable flag D26 are mentioned later.

[0053]If a salesclerk inputs the prices of goods via the final controlling element 25G here, it will move from CPU25A to step SP22 continuing, Subtract a part for sale proceeds from the balance data D22 (drawing 7 (B)) stored in RAM58 of IC card 50 based on the sale proceeds concerned, and. The subtracted electronic money rental spending concerned is stored in the amount storage area of electronic money use of the storage parts store 25B of electronic money terminal equipment 25<sub>x</sub> with the card number and use date information of IC card 50. Incidentally, use time is detected by the timer 25T formed in the body part 25J.

[0054]When the amount of money which it is going to consume to the balance of the electronic money stored in IC card 50 here is high, display CPU25A on display 25F and amount display of total 25L<sub>2</sub>, and. Move to step SP24 from step SP23 continuing, and the credit card available flag (drawing 7 (B)) memorized by IC card 50 is read, If it is a usable state, it moves to step SP25 and stores in the amount storage area of credit card use of the storage parts store of electronic money terminal equipment 25<sub>x</sub> by making the insufficiency at this time into the amount of credit card use.

[0055]The amount of money incorporated from the balance of IC card 50 is stored in the storage parts store 25B of electronic money terminal equipment 25<sub>x</sub> with the card number and use date information of IC card 50 as electronic money use information by this, The amount of money consumed as the amount of credit card use is stored in the storage parts store 25B of electronic money terminal equipment 25<sub>x</sub> with the card number and use date information of IC card 50 as credit card use information.

[0056]When IC card 50 is incidentally distributed among a user, In the issue data server 14 (drawing 2) of the electronic money Management Department 10, register the number of the available credit card of the card issuer issue which a user uses, and the card number of IC card 50 distributed among the user concerned, and. It is made as [ make / into the usable state / the credit card use flag D24 (drawing 7 (B)) of RAM58 of IC card 50 ]. And the electronic money Management Department 10 checks the use propriety of the card by the number of the credit card concerned to a card issuer the term of validity, the existence of the delay to pay, a

theft, the existence of a notification of loss, etc. periodically.

[0057]When the credit card registered as a result of the check concerned cannot use it, the electronic money Management Department 10 receives each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>). The information showing a purport [ that the card number and credit card of IC card 50 of the user by whom the number of the credit card / that it cannot be used / is registered cannot use it ] is transmitted. By this each terminal unit 25 (25<sub>1</sub>-25<sub>n</sub>), Without assigning as a used part of a credit card, even if the balance of electronic money runs short when the IC card 50 is used, display that the balance is insufficient on the displays 25F and 25L, and. The credit card available flag of the memory of IC card 50 concerned is set up improper [ use ].

[0058]When the credit card available flag set as the memory of IC card 50 is changed improper [ use ], each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) will perform only consumption of the electronic money beforehand received by IC card 50 concerned. Therefore, in this case, it moves to step SP26 from step SP24 of drawing 13, and CPU25A of the electronic money terminal equipment 25 displays that credit card use is improper on the displays 25F and 25L.

[0059]And when the processing about use of a series of IC cards 50 is completed, CPU25A of the electronic money terminal equipment 25, After moving to step SP27 and writing the utilization history at this time in RAM58 of IC card 50 as the electronic money log data D23 (drawing 7 (B)), the IC card use procedure concerned is ended in step SP28.

[0060]As a result, to the storage parts store 25B of the electronic money terminal equipment 25. When the amount of use by the electronic money beforehand stored in IC card 50 and the electronic money concerned run short as a utilization history at the time of using IC card 50, the amount of credit card use shaken and changed to use of the credit card divides, and is recorded. Incidentally, use time and an IC card number are recorded on the storage parts store 25B as utilization history data with the amount of use at this time.

[0061] Here the electronic money log data D23 (drawing 7 (B)) written in RAM58 of IC card 50, As shown in drawing 14 (A), one utilization history block is constituted from data of 32 [byte] which consists of an item of 12, and it is made as [ write / the utilization history block concerned / by 15 blocks of past (a part for 15 times use) / cyclically ].

[0062]Communication specific information D23<sub>1</sub> for specifying communication of the utilization time written in the block concerned by IC card 50 as this utilization history block, The usage pattern of the electronic money in the utilization history concerned (with usage patterns, such as payment and consumption.) Log type information D23<sub>2</sub> showing the classification of whether consumption uses electronic money remainder or for the insufficiency to be shaken at credit card use, and to change it, Use date information D23<sub>3</sub> and terminal number information D23<sub>4</sub> showing the number of used electronic money terminal equipment 25<sub>x</sub>, Dealings (use) amount information D23<sub>5</sub> in the utilization history concerned, and Kyber John information D23<sub>6</sub> showing the version of the cryptographic key of the commo data in IC card utilization time, After-use balance information D23<sub>7</sub> showing the electronic money balance in the IC card after dealings (use), Communication specific information D23<sub>8</sub> for electronic money terminal equipment 25<sub>x</sub> to specify the communication concerned in communication with electronic money terminal equipment 25<sub>x</sub> at the time of the dealings (use) concerned, and IC card 50, It has sign information D23<sub>9</sub> expressed using the key specified by above-mentioned Kyber John information D23<sub>6</sub>.

[0063]Thus, the control section 59 of IC card 50 is made as [ form / the electronic money log data D23 which consists of one utilization history block (drawing 14 (A)) for every use ]. Use by the electronic money beforehand stored in IC card 50 with the use unit in this case, When the electronic money concerned runs short, use which was able to be distributed to a part for credit card use is made into the separate unit (utilization history), and it is made as [ form /

for every use units of these / a separate utilization history block ].

[0064] Thus, the electronic money log data D23 created whenever it uses IC card 50, In step SP22 and step SP25 which were mentioned above about drawing 13, while being written in RAM58 of IC card 50 in step SP28 of the IC card use procedure mentioned above about drawing 13, it is accumulated also in the storage parts store 25B of the electronic money terminal equipment 25.

[0065] In this case, CPU25A of the electronic money terminal equipment 25 adds the card specific information D23A which specifies IC card 50 shown in drawing 14 (B) to the electronic money log data D23 (drawing 14 (A)), and writes it in the storage parts store 25B.

[0066][0066]. That is, card specification is provided with the following.

IC card number D showing the IC card used in the electronic money log data D23 in which D23A adds the card specific information 23A concerned.

The dealings terminal flag D with which A<sub>1</sub> and electronic money terminal equipment 25<sub>x</sub> which writes in the electronic money log data D23 at this time express whether it is the same as that of electronic money terminal equipment 25<sub>x</sub> of the card utilization time by which the electronic money log data D23 was created.

The Kyber John information D that the version of the cryptographic key of the commo data at the time of writing the electronic money log data D23 concerned in electronic money terminal equipment 25<sub>x</sub> is expressed as A<sub>2</sub>.

Sign information D expressed using the key specified by A<sub>3</sub> and Kyber John information D23A<sub>3</sub>.

[0067] Incidentally CPU25A of electronic money terminal equipment 25<sub>x</sub>, In the card utilization time by which the electronic money log data D23 concerned was created, write the electronic money log data D23 in RAM58 of IC card 50, and. The card specific information D23A is added to the electronic money log data D23 concerned, and it writes in the storage parts store 25B of electronic money terminal equipment 25<sub>x</sub>. Here the electronic money log data D23 written in IC card 50, It is accumulated in IC card 50 by the past 15 use, and these electronic money log data D23 are written in electronic money terminal equipment 25<sub>x</sub> using IC card 50 concerned with the card specific information D23A, whenever IC card 50 concerned is newly used.

[0068] Therefore, whenever IC card 50 is used, electronic money terminal equipment 25<sub>x</sub>, It is made as [ write / in the storage parts store 25B / the electronic money log data D23 for the past 15 use currently written in IC card 50 concerned ], Other electronic money terminal equipment 25<sub>x</sub> as terminal number information D23<sub>4</sub> of the electronic money log data D23 of the past concerned to write in is the information to express by dealings terminal flag D23A<sub>2</sub> of the card specific information D23A. It is made as [ indicate / that it is what the electronic money log data D23 concerned expresses dealings by other electronic money terminal equipment 25<sub>x</sub> to ]. And this display is used for the clearing time by the electronic money Management Department 10.

[0069] As incidentally shown in drawing 15, when using IC card 50 (50<sub>1</sub>, 50<sub>2</sub> ... 50<sub>n</sub>), The electronic money log data D23 (1<sub>1</sub>)-D23 (15<sub>1</sub>) for each past 15 times use accumulated in each IC card 50 (50<sub>1</sub>, 50<sub>2</sub> ... 50<sub>n</sub>) concerned, By writing D23 (1<sub>2</sub>)-D23 (15<sub>2</sub>), D23 (1<sub>n</sub>) - D23 (15<sub>n</sub>) in electronic money terminal equipment 25<sub>x</sub> each time, If multiple-times use of same IC card 50 is carried out to the same electronic money terminal equipment 25<sub>x</sub>, the case where the same electronic money log data D23 is written in the electronic money terminal equipment 25<sub>x</sub> concerned will arise, but. In this case, CPU25A of the electronic money terminal equipment 25 cancels the same electronic money log data D23 based on communication specific information (Card TransactionS/N (A)) D23<sub>1</sub> of the electronic money log data D23 shown in drawing 14.

[0070] By this to one piece of electronic money terminal equipment 25<sub>x</sub>. The electronic

money log data D23 for the past 15 times use read in IC card 50 ( $50_1, 50_2, \dots, 50_n$ ) of these when IC card 50 ( $50_1, 50_2, \dots, 50_n$ ) was used, The new electronic money log data D23 by which it was generated at the time of the use concerned is memorized without duplication.

[0071]In this state, the same electronic money log data D23 of each IC card 50 ( $50_1, 50_2, \dots, 50_n$ ) will be memorized by two or more electronic money terminal equipment  $25_x$  ( $25_1, 25_2, \dots, 25_n$ ). However, the inside of the same electronic money log data D23 distributed and memorized by these each electronic money terminal equipment  $25_x$ . In the electronic money log data D23 memorized by electronic money terminal equipment  $25_x$  used at the time of the dealings which the electronic money log data D23 concerned generated (IC card utilization time). Dealings terminal flag (Terminal Transaction Flag) D23A<sub>2</sub> (drawing 14 (B)) of the card specific information D23A (drawing 14 (B)) memorized with the electronic money log data D23 concerned stands, Only the electronic money log data D23 where the dealings terminal flag stands among the electronic money log data D23 brought together in the electronic money Management Department 10 is used for the clearing time.

[0072]The amount of money each time it uses IC card 50 for electronic money terminal equipment  $25_x$  in this way, A card number and date information are accumulated as a utilization history (electronic money log data D23), and the electronic money Management Department 10 will summarize once the utilization history of IC card 50 accumulated in each electronic money terminal equipment  $25_x$  ( $25_1$ - $25_n$ ) on the 1st, and will incorporate it.

[0073]The electronic money Management Department 10 And the inside of the IC card utilization history information (the electronic money log data D23 and card specific information D23A) from the incorporated each electronic money terminal equipment  $25_x$  ( $25_1$ - $25_n$ ) concerned, About credit card use information, it totals collectively every IC card 50 for every predetermined period, and the totaled result concerned is transmitted to a bank and the card issuer management computer 100 based on the credit card number beforehand registered with the card number of the IC card 50.

[0074]At this time, a bank and a card issuer management computer charge directly the amount of money to have been shaken and changed to use of the credit card to a user's account, and accumulates it in the comprehensive server 16 by transmitting to the electronic money Management Department 10.

[0075]Therefore, the amount of money accumulated as the amount of credit card use when a user used IC card 50 and electronic money remainder ran short is collectively charged directly to a user's account with a bank and the card issuer management computer 100, and is stored in the comprehensive server 16 of the electronic money Management Department 10.

[0076]Thus, when a user uses IC card 10, even if shortage arises in electronic money remainder and it is shaken and changed to use with a credit card, The pulling-down claim of the amount of money for two or more use can be performed by one communication to a bank and the card issuer management computer 100 from the electronic money Management Department 10 by not performing pulling-down processing to a bank and the card issuer management computer 100 promptly then, but pulling down collectively later. Thus, when communication cost does not occur for every one use of IC card 50, even if rental spending is a small sum, IC card 50 (credit card) can be used.

[0077]and, The electronic money Management Department 10 Each terminal unit 25. Based on the utilization history (the electronic money log data D23 and card specific information D23A) of IC card 50 which was summarized 1 time respectively from ( $25_1$ - $25_n$ ) on the 1st, and was incorporated into the database 16C of the comprehensive server 16, settling processing is performed once in one month.

[0078]drawing 16-- the electronic money server 13 of the electronic money Management Department 10 -- from each electronic money terminal equipment  $25_x$  -- being periodical (it will be 1 time of frequency on the 1st) -- electronic money log data D23 drawing 14 (A) and

the combination data (utilization history) of the card specific information D23A (drawing 14 (B)). If it brings together in the comprehensive server 16, the procedure which performs settling processing using the utilization history accumulated in the comprehensive server 16 concerned is shown and the electronic money server 13 goes into the procedure concerned from step SP40, The utilization histories accumulated in these electronic money terminal equipment 25<sub>[ from each electronic money terminal equipment 25<sub>x</sub> ]<sub>x</sub></sub> by 1 time of frequency on the 1st in step SP41 continuing are collected, and it stores in the comprehensive server 16.

[0079]And in step SP42 continuing the electronic money server 13, For example, it is judged whether it is the clearing time performed by 1 time of frequency in one month, When it is the clearing time, it moves to step SP43, and the utilization history data where dealings terminal flag (Terminal Transaction Flag) D23A<sub>2</sub> stands among the utilization histories accumulated in the comprehensive server 16 is classified as judgment log data.

[0080]And it moves to step SP44 continuing and the electronic money server 13 compares judgment log data with other utilization history data. When this comparison result is inharmonious, this means that the electronic money log data D23 by which it was generated in either of the electronic money terminal equipment 25<sub>x</sub> at the time of use of IC card 50 was lost, At this time, the electronic money server 13 obtains a negative result in step SP45, and it moves from it to step SP46.

[0081]In step SP46, the electronic money server 13 uses as judgment log data other utilization history data which is not in agreement with judgment log data. Thereby, the lost electronic money log data D23 is substituted by the electronic money log data D23 read from IC card 50 concerned to the utilization time of IC card 50 in other electronic money terminal equipment 25<sub>x</sub>.

[0082]In this way, in step SP47 continuing, the electronic money server 13 performs settling processing only using judgment log data, and ends the procedure concerned in step SP48.

[0083]According to the processing start command from the comprehensive server 16, here the electronic money server 13, It goes into a settlement processing procedure from step SP30 shown in drawing 17 when it goes into the settling processing step of drawing 17, The utilization history (the electronic money log data D23 and card specific information D23A) collected from electronic money terminal equipment in step SP31 continuing is classified for every utilization-time belt based on the use date information D23<sub>3</sub> (drawing 14 (A)).

Incidentally, the use commission of the electronic money system 1 to each store is beforehand stored in the database 16C of the comprehensive server 16, and the commission rate to sale proceeds is set to it as a different value for every time zone as the use commission concerned. In the case of this embodiment, when the utilization time of IC card 50 is from 5:00 a.m. to 5:00 p.m. (the 1st time zone), a commission rate is made into 5%, and when it is from 5:00 p.m. before 5:00 a.m. (the 2nd time zone), the commission rate is set up as 7%.

[0084]Therefore, the electronic money server 13 settles the electronic money log data D23 classified in the 1st time zone and 2nd time zone in step SP31 of drawing 15 using the commission rate for every time zone in step SP32 continuing.

[0085]Thereby, the electronic money server 13 performs settling processing to the rental spending used in the 2nd time zone using the use commission rate of 5% at the rental spending used in the 1st time zone using the use commission rate of 7%.

[0086]5% of the use commission is deducted from the rental spending used in the 1st time zone by this, and the amount of money by which 7% of the use commission was deducted from the rental spending used in the 2nd time zone serves as profits of each store. Thus, after performing settling processing, it moves to step SP33 continuing, and the electronic money server 13 picks out the profit amount according to the result of settling processing from the money data accumulated in the database 16C of the comprehensive server 16, and transfers it to the account of each store. At this time, the electronic money server 13 outputs the details

according to time zone of all the use, and the sum total data according to time zone, and distributes each store-oriented transfer detailed data among each store.

[0087]And the electronic money server 13 ends the settling processing concerned in step SP34.

[0088]Thus, in the daytime when sale of the goods of a small amount increases comparatively by changing an electronic money use commission rate for every time zone. The commission rate according to setting of price of the goods in each store is realizable by setting up a high commission rate in at night when a low commission rate is set up and sale of comparatively big-ticket goods increases.

[0089]Next, processing of the electronic money system 1 at the time of a user losing IC card 50 is explained.

[0090] If a user loses IC card 50, the user concerned will submit a card report of the loss of an article to the electronic money Management Department 10 (an electronic money management tool, the means corresponding to card loss). The operator of the electronic money Management Department 10 which received the card report of the loss of an article specifies the lost IC card with the card number by operating the final controlling element 16D of the comprehensive server 16 (balance decision means) shown in drawing 4 which becomes by a keyboard.

[0091]CPU16A registers into the database 16C the card number of the lost card inputted via the final controlling element 16D. In the case of this embodiment, CPU16A of the comprehensive server 16, If procedure corresponding to the loss to the lost card shown in drawing 18 is always performed and CPU16A goes into the procedure concerned from step SP50 in this procedure, it will be judged whether in step SP51 continuing, the card report of the loss of an article was submitted (input).

[0092]If a negative result is obtained here, this means that the report of the loss of an article of a card is not submitted, At this time, it moves from CPU16A to step SP52, and it is judged whether it is the timing which collects the electronic money log data (utilization history data) D23 from each electronic money terminal equipment  $25_x$  ( $25_1$ - $25_n$ ). Incidentally, in the case of this embodiment, the comprehensive server 16 is made as [ store / in the database 16C / the electronic money log data D23 collected by the basis of management of the electronic money server 13 by 1 time of frequency on the 1st from each electronic money terminal equipment  $25_x$  ( $25_1$ - $25_n$ ) ].

[0093]Therefore, CPU16A repeats processing of step SP51 and step SP52 until it becomes the collection timing of the electronic money log data D23. When it becomes the collection timing of the electronic money log data D23, CPU16A by obtaining an affirmation result in step SP52, It moves to step SP53 and the electronic money log data D23 for [ which is accumulated in each electronic money terminal equipment  $25_x$  collected by the electronic money server 13 from each electronic money terminal equipment  $25_x$  ( $25_1$ - $25_n$ ) at this time ] one day is stored in the database 16C. Processing of this step SP53 is the same processing as the processing of step SP41 mentioned above about drawing 16.

[0094]And CPU16A, It is judged whether it moves to step SP54 continuing and the card report of the loss of an article is submitted before collection processing of the electronic money log data D23 in above-mentioned step SP53 (namely, during past the 1st from collection processing of the electronic money log data D23 in step SP53).

[0095]If a negative result is obtained here, it will mean that the card report of the loss of an article is not submitted, and this does not need to perform loss processing to a lost card, and CPU16A will repeat the same processing from above-mentioned step SP51 at this time.

[0096] If an affirmation result is obtained in above-mentioned step SP51, this means that the card report of the loss of an article was submitted, At this time, it moves from CPU16A to step SP58, At this time. When the NEGARISUTO registration instruction and the lost card

concerned for suspending use of the lost card concerned based on the card number of IC card 50 (this is called a lost card below) to which the report of the loss of an article was submitted are used, the lost card concerned is received. The directions which perform disable registration processing (it mentions later) are transmitted to each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>). Thereby, if a card report of the loss of an article is submitted, the comprehensive server 16 can transmit directions of the NEGARISUTO registration instruction of a lost card, and the disable registration processing to a lost card promptly to each electronic money terminal equipment 25<sub>x</sub>, and can stop the handling of a lost card.

[0097]Incidentally, if the NEGARISUTO registration instruction of a lost card is transmitted from the comprehensive server 16 to each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), About the lost card specified at this time, CPU25A of each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) creates NEGARISUTO D58 shown in drawing 19, and stores it in the storage parts store 25B. This NEGARISUTO D58 is provided with the following. List type information D58<sub>1</sub> showing being a list created for every lost card, and the list concerned being NEGARISUTO.

Record date information D58<sub>2</sub> showing the date by which NEGARISUTO D58 concerned was created.

Mothballs opening day information D58<sub>3</sub> which expresses an opening day for the mothballs of a lost card by NEGARISUTO D58.

Mothballs end date information D58<sub>4</sub> showing the end date of mothballs processing of a lost card, Card number information D58<sub>5</sub> of the lost card which is an object which performs mothballs processing by NEGARISUTO D58 concerned, Kyber John information D58<sub>6</sub> showing the version of the cryptographic key of NEGARISUTO D58 concerned, and sign information D58<sub>7</sub> expressed using the key specified by Kyber John information D58<sub>6</sub>.

[0098]Each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), When NEGARISUTO shown in drawing 19, respectively is created about a lost card and IC card 59 is used, By comparing IC card number D11 (drawing 7.(A)) and card number information D58<sub>5</sub> of NEGARISUTO D58 which are stored in RAM58 of used IC card 50 concerned, it can be judged whether this IC card 50 is a lost card. Incidentally, the processing at the time of IC card use is mentioned later.

[0099]And after processing of step SP58 is completed, CPU16A returns to above-mentioned step SP51, Whenever it judges whether there is any presentation of a new card report of the loss of an article and a new card report of the loss of an article is submitted, above-mentioned step SP58 is performed based on the card number of the submitted lost card.

[0100]Thus, if a card report of the loss of an article is submitted in the comprehensive server 16 while collecting the electronic money log data D23 from each electronic money terminal equipment 25<sub>x</sub> by 1 time of frequency on the 1st, About the lost card to which the card report of the loss of an article concerned was submitted, after the card report of the loss of an article concerned is submitted, and collection processing of the electronic money log data D23 is performed to the beginning from each electronic money terminal equipment 25<sub>x</sub>, the balance of a lost card is decided. In this case, it moves from CPU16A of the comprehensive server 16 to step SP55 continuing by obtaining an affirmation result in step SP54.

[0101]In the balance determining processing of step SP55, CPU16A out of the utilization history data (electronic money log data D23) of all the IC cards 50 collected from each electronic money terminal equipment 25<sub>x</sub>. The electronic money log data D23 about a lost card in which the card report of the loss of an article was submitted are collected based on a card number, and the balance is decided using the collected electronic money log data D23 concerned of a lost card.

[0102]In this case, CPU16A decides electronic money remainder based on after-use balance information D23<sub>7</sub> showing the electronic money balance of the newest electronic money log



data D23 in the electronic money log data D23 mentioned above about drawing 14 (A).  
[0103]Thus, if the balance of a lost card is decided, it will move from CPU16A to step SP56, The data for repaying the settled balance concerned to a user is generated, and the recurrence line of the new IC card 50 which transmits directions of card replacement to the issue data server 14, and replaces a lost card in the issuing device 15 is carried out. In this case, by giving a different card number from the card number of a lost card to IC card 50 by which a recurrence line is carried out, In each electronic money terminal equipment 25<sub>x</sub> which has suspended the handling to IC card 50 with the card number of a lost card, use of IC card 50 by which the recurrence line was carried out can be enabled.

[0104]In this way, in step SP57, CPU16A of the comprehensive server 16 ends the procedure corresponding to loss of a lost card, after ending the processing in step SP56.

[0105]In step SP58 of the procedure corresponding to loss of drawing 18, if the mothballs command of a lost card and the negative registration instruction of a lost card are transmitted from the comprehensive server 16 to each electronic money terminal equipment 25<sub>x</sub>, here, In processing of step SP21 of drawing 13 performed whenever IC card 50 is used, each electronic money terminal equipment 25<sub>x</sub> adds and performs the mothballs and disable registration processing to the lost card shown in drawing 20.

[0106]Namely, CPU25A of each electronic money terminal equipment 25<sub>x</sub>, If the NEGARISUTO registration instruction of the lost card from the electronic money Management Department 10 and the disable registration instruction to a lost card are received, Create NEGARISUTO D58 (drawing 19) about the lost card concerned, and it stores in the storage parts store 25B, After the day (day when NEGARISUTO D58 was usually created) specified by mothballs opening day information D58<sub>3</sub> (drawing 19) of NEGARISUTO D58 concerned, Whenever it performs processing (step SP21 of drawing 13) which IC card 50 is used and reads a card number from IC card 50 concerned, the mothballs and the disable registration processing procedure over the lost card which enters from step SP70 of drawing 20 are performed about the read card number concerned. In step SP71 of this processing, CPU25A of each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), The card number of used IC card 50 judges whether it is in agreement with the card number (card number information D58<sub>5</sub>) of the lost card registered into the storage parts store 25B as NEGARISUTO D58.

[0107]If a negative result is obtained here, will express that IC card 50 for which this is used at this time is not a lost card, will move from CPU25A to step SP73 at this time, will end mothballs and disable registration processing, and. It returns to step SP21 mentioned above about drawing 13, and use processing of IC card 50 is continued.

[0108]On the other hand, when an affirmation result is obtained in step SP71, this expresses that IC card 50 used at this time is a lost card, and at this time CPU25A, Move to step SP72, and the handling of IC card 50 (lost card) concerned is suspended, and disable registration processing is performed to IC card 50 (lost card) concerned.

[0109]Disable registration processing is processing made impossible [ use of the lost card concerned ] by setting the disable flag D26 (drawing 7 (B)) of the management information D10 (drawing 7) stored in RAM58 (drawing 6) of the card to the lost card. Thus, when the disable flag D26 is set to the management information D10 of the IC card 50 (lost card), IC card 50 (lost card) concerned, When use is tried by the third party in each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), It is checked about step SP21 of drawing 13 by the confirming processing of the disable flag D26 by electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) mentioned above that it is a lost card, and use is forbidden.

[0110]Thus, if a card report of the loss of an article is submitted, also in which electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), the handling of a lost card will be suspended by the NEGARISUTO registration in each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), and.



When use of a lost card is tried in one of electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), By performing processing which sets the disable flag D26 to the lost card itself, electronic money terminal equipment 25<sub>x</sub> can change the lost card itself into a disable state. Therefore, use of the lost card to which the card report of the loss of an article was submitted can be certainly stopped by setting up the disable state of a lost card in both electronic money terminal equipment 25<sub>x</sub> and a lost card.

[0111]Incidentally disable end date D58<sub>4</sub> of NEGARISUTO D58 set up in each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), For example, what is necessary is just to set up after the date which decides the balance of a lost card in step SP55 and step SP56 of drawing 18, and completes refund processing.

[0112](2) In operation of an embodiment, and the composition beyond an effect in the electronic money system 1. Whenever it uses each IC card 50 (50<sub>1</sub>-50<sub>n</sub>), the electronic money log data D23 (drawing 14 (A), (B)) of IC card 50 concerned is accumulated in electronic money terminal equipment 25<sub>x</sub> which uses IC card 50 concerned. And the electronic money Management Department 10 collects the electronic money log data D23 of each IC card accumulated in each from each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) to predetermined timing (it will be 1 time of frequency on the 1st).

[0113]Thus, in the electronic money system 1, it is made as [ manage / each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) ] that the electronic money Management Department 10 collects the electronic money log data D23 from each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) etc. Therefore, shortly after a card report of the loss of an article is submitted, the electronic money Management Department 10 can direct the registration processing of NEGARISUTO to each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>).

[0114]And the electronic money Management Department 10 can grasp the utilization history of each IC card 50 (50<sub>1</sub>-50<sub>n</sub>) based on all the electronic money log data D23 for [ collected from each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) ] one day. Therefore, even if either of each IC card 50 (50<sub>1</sub>-50<sub>n</sub>) is lost, The utilization history of the lost card concerned remains in each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), and the utilization history is checked when the electronic money log data D23 are collected by the electronic money Management Department 10 from electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>).

[0115]Thereby, after a card is lost, the balance of a lost card is decided at the shortest on the next day.

[0116]When this is incidentally lost an intact state after the user paid money data to IC card 50, will be in the state where the utilization history (electronic money log data D23) of lost IC card 50 does not exist in each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), but. In this case, by saving the payment historical data in payment terminal unit 21<sub>x</sub> which paid money data to IC card 50 in the database 16C of the comprehensive server 16 of the electronic money Management Department 10, According to the utilization history information of IC card 50 lost in the electronic money log data D23 collected from each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) not being included, The balance is decided using the payment historical data saved in the database 16C of the comprehensive server 16.

[0117]According to the above composition, the owner of the lost card concerned can be repaid to the amount of money according to the balance of the lost card by collecting the electronic money log data D23 of a lost card from each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>), and deciding the balance.

[0118]And the electronic money Management Department 10 can prevent use of the lost card by a third party by transmitting the mothballs command of a lost card to each electronic money terminal equipment 25<sub>x</sub> (25<sub>1</sub>-25<sub>n</sub>) promptly, if the report of the loss of an article of IC card 50 is submitted. When use of a lost card is tried, the lost card itself can be made into a reuse prohibited state by setting the lost card concerned as a disable state.

[0119](3) Although the case where noncontact IC card 50 was used was described, it may be made for this invention to use the IC card of not only this but a contact type in other embodiments, in addition above-mentioned embodiments.

[0120]Although summarized the utilization history of IC card 50 accumulated in each electronic money terminal equipment 25<sub>x</sub> by 1 time of frequency in the above-mentioned embodiment on the 1st, and the electronic money Management Department 10 collected and the electronic money Management Department 10 described the case where settlement of accounts was performed once in one month, The collection timing of the utilization history from each electronic money terminal equipment 25<sub>x</sub> and the timing of settling processing can apply various timing.

[0121] [Effect of the Invention]In the electronic money system made as [ draw / the money data for a user's consumption amount / as mentioned above / according to this invention / from the money data received by the information card / an electronic money terminal means ], The utilization history data at the time of pulling out the money data for consumption amount from an information card is accumulated in an electronic money terminal means, When an information card is lost, the balance of the lost information card can be checked by referring to the utilization history data about the lost information card in the utilization history data accumulated in the electronic money terminal means.

[0122]Therefore, even when an information card is lost, the balance of the lost information card concerned can be decided and processing of the refund according to the settled balance concerned, etc. can be performed to a user.

[0123]The electronic money terminal means can suspend the handling of the lost information card concerned by registering the lost information card.

[0124]When use of the lost information card is tried, the information card concerned itself can be changed into a disable state by writing in disable information from an electronic money terminal means to the information card concerned.

[0125]Surreptitious use of the information card to write and which was lost in carrying out can be prevented.

#### [Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the entire configuration of the electronic money system by this invention.

[Drawing 2]It is a block diagram showing the composition of the electronic money Management Department.

[Drawing 3]It is a block diagram showing the composition of a security server.

[Drawing 4]It is a block diagram showing the composition of a comprehensive server.

[Drawing 5]It is an approximate line perspective view showing the composition of an information card.

[Drawing 6]It is a block diagram showing the composition of an information card.

[Drawing 7]It is an approximate line figure showing the data written in an information card.

[Drawing 8]It is a perspective view showing the appearance of a payment terminal unit.

[Drawing 9]It is a block diagram showing the composition of a payment terminal unit.

[Drawing 10]It is a flow chart which shows the receiving process procedure by a payment terminal unit.

[Drawing 11]It is a perspective view showing the appearance of electronic money terminal equipment.

[Drawing 12]It is a block diagram showing the composition of electronic money terminal equipment.

[Drawing 13]It is a flow chart which shows the information card use procedure of electronic money terminal equipment.

[Drawing 14] It is an approximate line figure showing the composition of electronic money log data.

[Drawing 15] It is an approximate line block diagram showing the flow of electronic money log data.

[Drawing 16] It is a flow chart which shows the fractionation treatment procedure of log data.

[Drawing 17] It is a flow chart which shows the settling processing procedure by the electronic money Management Department.

[Drawing 18] It is a flow chart which shows the procedure corresponding to card loss of a comprehensive server.

[Drawing 19] It is an approximate line figure showing the data content of NEGARISUTO.

[Drawing 20] It is a flow chart which shows the mothballs and the disable registration processing procedure over the lost card in electronic money terminal equipment.

[Explanations of letters or numerals]

1 .... An electronic money system, 10 .... The electronic money Management Department, 11 .... Security server, 13 .... An electronic money server, 14 .... An issue server, 15 .... Issuing device, 16 [ .... A vending machine, 21<sub>x</sub> / .... A payment terminal unit, 25<sub>x</sub> / .... Electronic money terminal equipment, 50 / .... An IC card, 100 / .... A bank and a card issuer management computer, D58 / .... NEGARISUTO. ] .... A comprehensive server, 17 .... An access server, 18 .... A vending machine server, 19<sub>x</sub>

[Drawing 1]

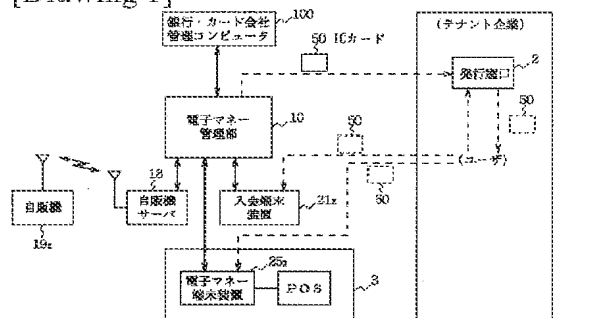


図1 電子マネーシステムの全体構成

[Drawing 2]

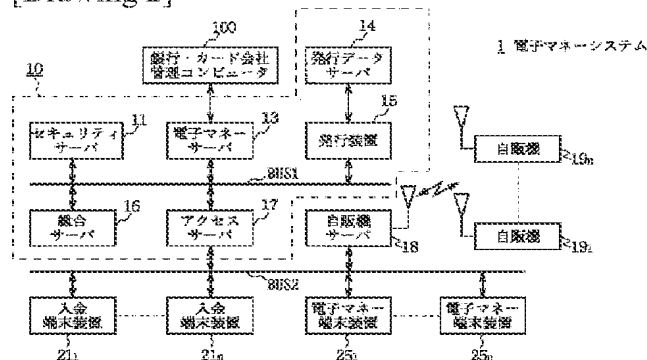


図2 電子マネー管理部の構成

[Drawing 3]

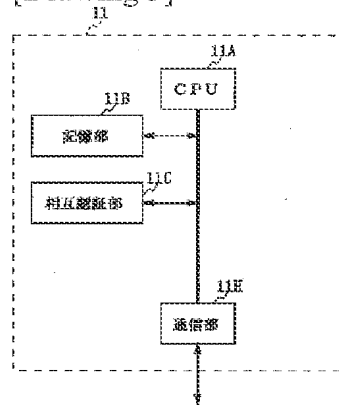


図3 セキュリティサーバの構成

[Drawing 4]

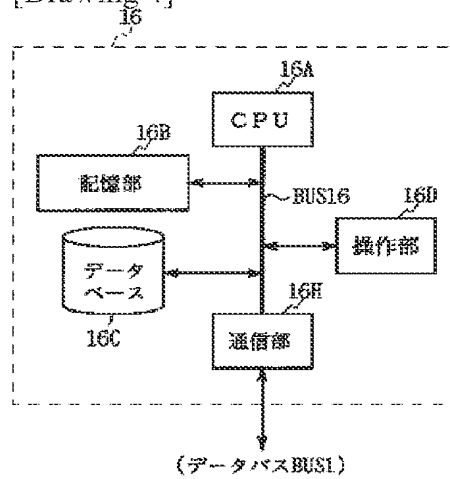


図4 総合サーバの構成

[Drawing 5]

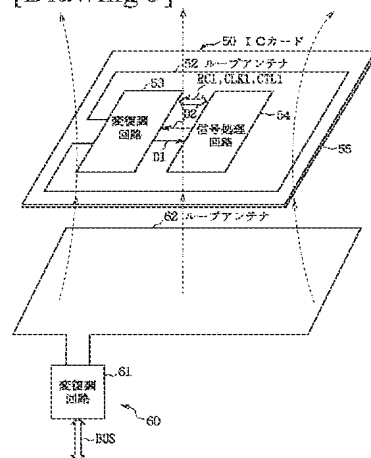


図5 非接触ICカードの構成

[Drawing 6]

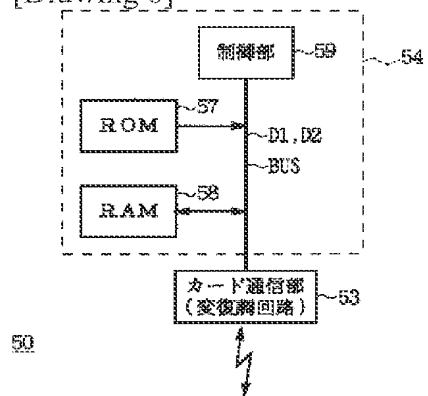


図6 ICカードの構成

[Drawing 7]

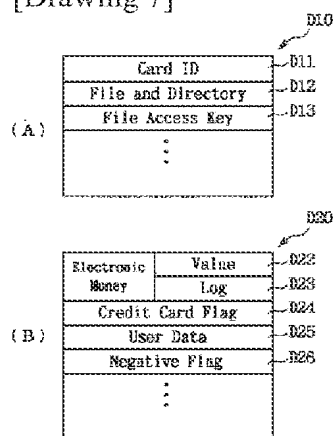


図7 ICカードのデータ

[Drawing 8]

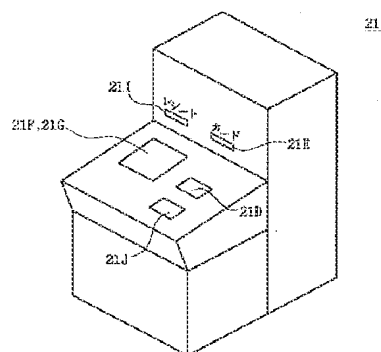


図8 入金端末装置の外観

[Drawing 9]

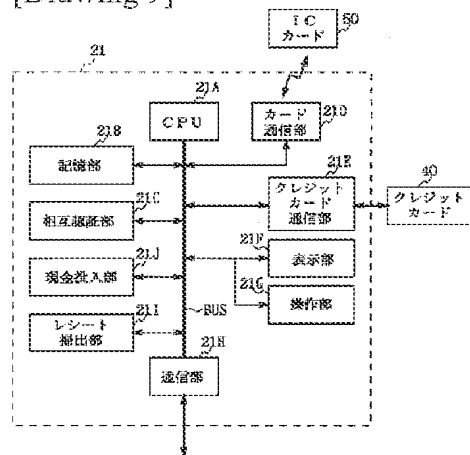


図9 入金端末装置の構成

[Drawing 10]

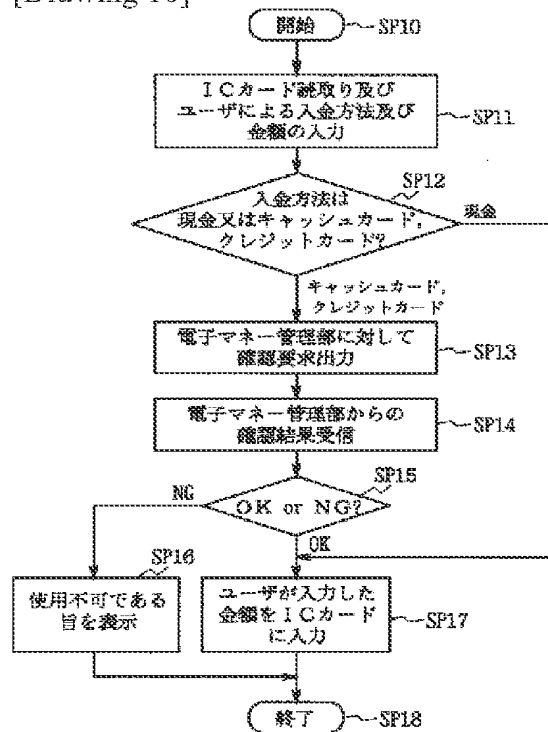


図10 入金処理手順

[Drawing 11]

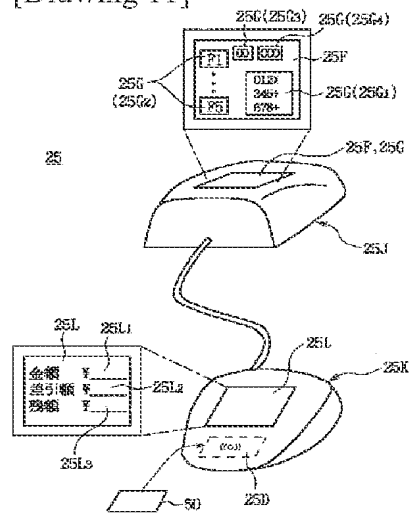


図 11 電子マネー端末装置の外観

[Drawing 12]

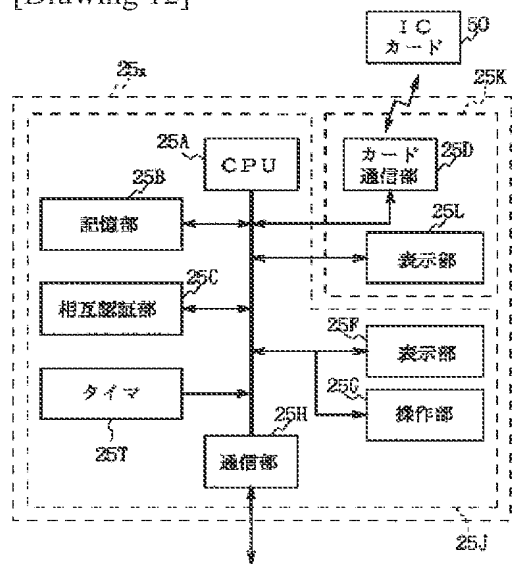


図 12 電子マネー端末装置の構成

[Drawing 13]

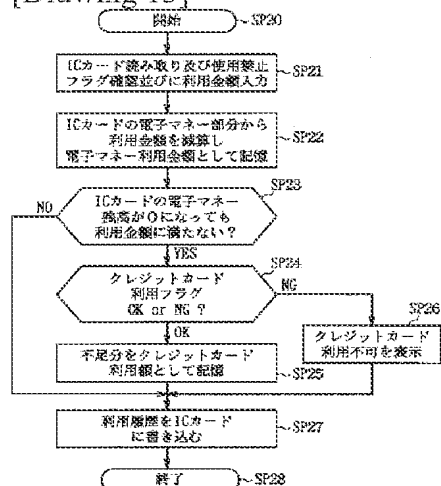


図13 電子マネー端末装置のICカード使用手順

[Drawing 14]

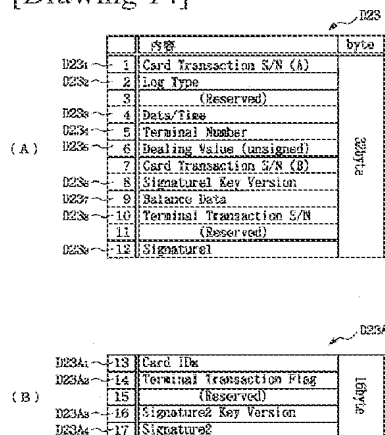


図14 電子マネーログデータ（利用履歴データ）

[Drawing 15]

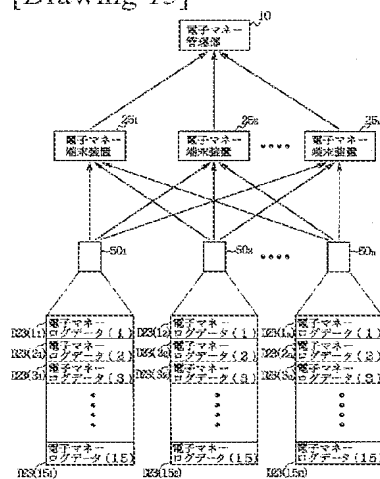


図15 電子マネーログデータの流れ



[Drawing 16]

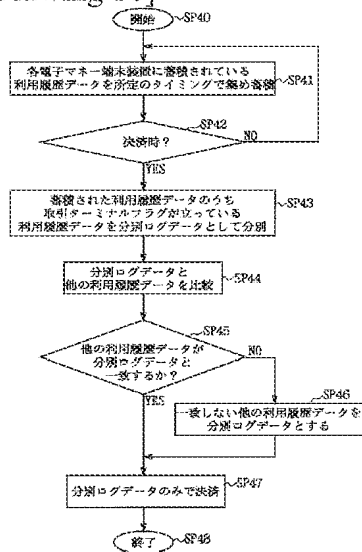


図16 電子マネーログデータ（利用履歴データ）の収集処理

[Drawing 17]

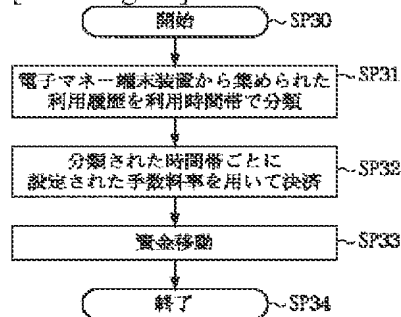


図17 決済処理手順

[Drawing 18]

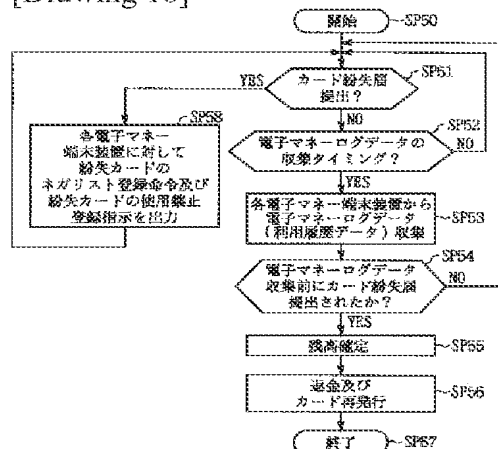


図18 総合サーバのカード紛失対応処理手順

[Drawing 19]

	内容	byte
D58 <sub>1</sub>	1 Negative List Type	32byte
	2 (Reserved)	
D58 <sub>2</sub>	3 Date(registered)	
D58 <sub>3</sub>	4 Date(start)	
D58 <sub>4</sub>	5 Date(end)	
D58 <sub>5</sub>	6 Card IDn	
	7 (Reserved)	
D58 <sub>6</sub>	8 Signature key Version	
D58 <sub>7</sub>	9 Signature	

図19 ネガリストデータ

[Drawing 20]

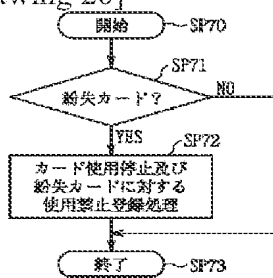


図20 紛失カードに対する使用停止及び  
使用禁止登録処理手順